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Rates of Hypertension

The Influence of Gender

Highlights

Diabetes and Organ Dysfunction

Dysfunction in the Developing

Discovering Thoughts, Inventing Future

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Rates of Hypertension Prevalence, Awareness, Treatment, and Control in a Congolese South-West Port City. The Influence of Gender According to Age Groups

By Bernard Kianu Phanzu, Mpembele Mabaka Evelyne, Eleuthère Kintoki Vita, Jean Robert Makulo Risassi, Floriant Kiazayawoko Zola, Jean De Dieu Manyebwa Kalemera, Jean Bosco Kasiam Lasion'kin François Lepira Bompeka, Benjamin Longo-Mbenza, Jean Réné M'buyamba Kabangu, Michel Lutete Kelani, Jody Mbuilu Pukuta & Nanoue Masolo Muze Kianu

University of Kinshasa Congo

Abstract- *Background:* The knowledge of the prevalence of hypertension (HTN), the frequency with which it is detected, treated and controlled, are essential data to understand the importance of this issue and define intervention or prevention strategies.

Aim: To determine the hypertension rate of prevalence, awareness, treatment, and control in Matadian adult population.

Methods: During this cross-sectional study carried out within a random sample of adults in Matadi, a Congolese South-west port city, a total of 397 patients who fulfilled the inclusion criteria were enrolled to be interviewed and examined

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Rates of Hypertension Prevalence, Awareness, Treatment, and Control in a Congolese South-West Port City. The Influence of Gender According to Age Groups

Bernard Kianu Phanzu [α], Mpembele Mabaka Evelyne [σ], Eleuthère Kintoki Vita [ρ], Jean Robert Makulo Risassi [§], Floriant Kiazayawoko Zola [ζ], Jean De Dieu Manyebwa Kalemera [ð], Jean Bosco Kasiam Lasion'kin [ω], François Lepira Bompeka [Θ], Benjamin Longo-Mbenza [¥], Jean Réné M'buyamba Kabangu [χ], Michel Lutete Kelani [ν], Jody Mbuilu Pukuta [ς] & Nanoue Masolo Muze Kianu [ð]

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Results: HTN was identified in 162 (40.8%) participants. fifty eight (58%) participants with HTN were aware of the diagnosis, of whom 35 (37.2%) reported to take a blood pressure–lowering medications, with blood pressure control among 12 (34.2%) of those being treated. Women seem more aware of their condition than men before the age of 55 years. This trend was reversed after the age of 55 where men become more aware than women. The control rate is worse in hypertensive older women than among younger ones. An opposite situation was observed in men, in whom there is a better control of hypertension in older compared to younger.

Conclusion: This study found a high prevalence of HTN, as well as low percentage of HTN awareness, treatment, and control in Matadian population, highlighting the need for implementation of timely and appropriate strategies for prevention, diagnosis and control of this dreadful scourge.

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I. Introduction

The scourge of the African continent [1], the silent killer [2-6], a time bomb [6] etc are all commonly used periphrasis to designate hypertension. They say a lot about the extent and gravity of this systemic disease in Africa more than elsewhere on the globe and nowadays more than ever in the history of hominids. Hypertension is indeed a major public health problem which the growing scales, particularly in Sub-Saharan Africa, challenges scientists, politicians and people and requires a concerted response. It is estimated that in 2013 hypertension was responsible for at least 45% of deaths due to heart disease and 51% of deaths due to stroke [7].

While it is true that this scourge represents a real danger to humans, it is also true that this problem is vulnerable. Firstly, Large-scale epidemiological studies have clearly demonstrated the enormous impact of non-optimal blood pressure levels on the risks of major cardiovascular events in both higher- and lower-income regions [8-10]. On the other hand, the effects of blood pressure lowering with a range of drug therapies have been demonstrated in a large series of clinical trials [11-13]. The knowledge of the prevalence of hypertension (HTN), the frequency with which it is detected, treated and controlled, are essential data that are needed to understand the importance of this issue and define intervention or prevention strategies. Matadi, chief sea port city and provincial capital of Bas-Congo, one of the eleven provinces of the Democratic Republic of Congo, has never benefited from epidemiological studies to give figures for these parameters. Therefore, the objective of this study was to determine the rates of hypertension

prevalence, awareness, treatment, and control in participants of the Matadi Cardiovascular Risk Survey (MACRIS).

II. Materials and Methods

a) Study population

With the approval of protocol by the Ethics Committee of the School of Public Health , University of Kinshasa, DRC, and after obtaining the local administration permission and informed verbal consent from the target population according to the Helsinki Declaration II, a community-based cross-sectional study was carried out. This cross-sectional study involved a total of 397 apparently healthy Matadian adult (18 years and older) randomly selected from the two sanitary zones of the port city of Matadi (South west of DRC) with 306 053 inhabitants.

The sampling strategy was based on a multi-stage random sample. In the first, a cluster sampling considered each of the two health zones of the city of Matadi. In the second, a simple random sampling was carried out and allowed to sort four health areas in each health zone. In the third, a simple random sampling was also carried out by pooling two random avenues from each of the eight health areas. In the forth, the even-numbered plots were selected in each avenue. In the selected plots, one household was randomly selected. Finally, one randomly selected adult was pooled from each selected household and was invited to participate in the study. Adult living the city of Matadi for less than one year were excluded from the study.

Data were collected from September 20 to October 20, 2014. The following clinical information was obtained from a questionnaire ad hoc: socio-demographic data (age, gender, marital status, education level, and religion), risk behavior (excessive alcohol consumption, cigarette smoking, physical inactivity), family and personal history (hypertension, diabetes mellitus). For each participant, previously trained investigators, all young doctors in professional internship in various hospitals in Matadi, measured body weight (kg), height (cm), waist circumference (cm), hip circumference (cm) and blood pressure (mmHg). Body weight was measured using scale Waagen Gmbh Co. Soenle, Murrhardt, German manufacturers. Age, gender, marital status, education level, religion, alcohol consumption, cigarette smoking, physical activity, family and personal history were filled in by self-report declaration. Body weight was recorded to the nearest 0.1 kg using an electronic beam balance scale. The patient was barefoot, lightly clad, standing motionless at the center of the weighing pan, upper limbs along the body; the body weight is evenly distributed on both feet. Height was measured to the nearest 1 mm using a standardised wallmounted height board; the patient being barefoot standing heels together, head positioned so that the line of sight is perpendicular to the body. Head, back, buttocks and heels were in contact with the vertical board of the toise. The participant took a deep breath and remained in this extended position while the cursor was brought into contact with the highest point of the head, pressing it to compress the hair. The body mass index (BMI) was calculated as weight (kg)/squared height (m). The waist circumference was measured; the participant was standing, with feet apart at about 25 cm, using a tape put through the umbilicus and halfway between the grid rib and the iliac crest. The measurement was taken at the end of expiration and it was recorded to the nearest millimeter. The hip circumference was measured under the same conditions; the ribbon was put through the widest part of the basin. Sitting blood pressure (BP) was measured non-invasively on the left arm, using an automated oscillometric BP recorder OMRON M6 worn cuff at heart level, the patient being seated for 5 minutes. An average of three consecutive shots each separated by three minute interval was chosen.

b) Operational definitions

Hypertension was defined as individuals with self-reported history of hypertension or with an average of 2 blood pressure measurements of at least 140/90mmHg using an automated digital sphygmomanometer. Awareness was based on self-reports. Treatment was based on the regular use of blood pressure–lowering medications. Control was defined as individuals with blood pressure lower than 140/90mmHg.

c) Statistical analyses

The collected data were encoded on EPIINFO 7 and exported to a Microsoft Excel sheet 2010 for cleaning and to check its consistency and quality, thus served as a database and were analyzed using SPSS Version 20.0 software.

The statistics used to describe the variables were the mean ± standard deviation for continuous quantitative variables with symmetric distribution, the median with interquartile range (IQR) for those with a non-Gaussian distribution. Categorical variables were described as relative frequency (%) and / or absolute (n).

For the analysis, comparison of means was performed with the Student t test or t test for variances, the median with the nonparametric Wilcoxon / Mann Whitney. The Pearson Chi-square or Fisher's exact test, as appropriate, was used to compare proportions.

III. Results

A total of 397 participants attended the survey, 105 (26.4%) were from the rural areas while 292 (73.6%) were from the urban areas, 144(36.3%) were men while 253(63.7%) were women, the mean age was 41.2±16.5 years. Respondents came in equal proportion from both

healthcare areas (50.1% of the Nzanza health area and 49.9% of Matadi health area). Two groups of respondents were constituted; the first was made of all respondents without hypertension (235 or 59.2%) and group 2 was made of hypertensive respondents (162 or 40.8%). Table 1 presents the general characteristics of the study population as a whole and stratified by the hypertension status. Hypertensive participants tended to be older and married; and marital status was associated with hypertension ($p < 0.0001$). They were more likely to belong to the Catholic Church and the Protestant Church. No difference has been noted between the two groups regarding the gender and the occupation.

Table 1 : General Characteristics of the study population as a whole and stratified according to the hypertensive status

Characteristics	Whole group (n=397)	Non hypertensive (n=235)	hypertensive (n=162)	p
Gender				0.280
Men	144(36.3)	82(34.9)	62(38.3)	
Women	253(63.7)	153(65.1)	100(61.7)	
Age				<0.0001
Mean ± SD. (years)	41.2±16.5	34.6±12.2	50.9±17.2	
<25	64(16.1)	53(22.6)	11(6.8)	
25 - 34	104(26.2)	79(33.6)	25(15.4)	
35 – 44	85(21.4)	59(25.1)	26(16.0)	
45 - 54	47(11.8)	22(9.4)	25(15.4)	
≥55	97(24.4)	22(9.4)	75(46.3)	
Health Zone				0.225
Nzanza Health Zone	199(50.1)	122(51.9)	77(47.5)	
Matadi Health Zone	198(49.9)	113(48.1)	85(52.5)	
Profession				NS
House wife	142(35.8)	81(34.5)	61(37.7)	
Independent	117(29.5)	69(29.3)	48(29.6)	
Un employed	52(13.1)	27(11.5)	25(15.4)	
Business agent	50(12.6)	27(11.5)	23(14.2)	
Student	29(7.3)	27(11.5)	2(1.2)	
Farmer	7(1.8)	4(1.7)	3(1.8)	
Marital status				<0.0001
Married	227(57.2)	130(55.3)	97(59.9)	
Unmarried	116(29.2)	90(38.3)	26(16.0)	
Widower	43(10.8)	7(3.0)	36(22.2)	
Divorcee	11(2.8)	8(3.4)	3(1.9)	
Province of origin				0.400
Bas Congo	381(96.0)	224(95.3)	157(96.9)	
Other province	16(4.1)	11(4.7)	5(3.0)	
Religion				<0.0001
Revivalist church	120(30.2)	89(37.9)	31(19.1)	
Protestant Church	99(24.9)	53(22.6)	46(28.4)	
Catholic Church	87(21.9)	33(14.0)	54(33.3)	
Other religion	48(12.1)	34(14.5)	14(8.6)	
No religious belief	22(5.5)	13(5.5)	9(5.6)	
Kimbanguist	21(5.3)	13(5.5)	8(4.9)	

Hypertension was identified in 162 (40.8%) participants. fifty eight (58%) participants with hypertension were aware of the diagnosis, of whom 35 (37.2%) reported to take a blood pressure-lowering medications, with blood pressure control among 12 (34.2%) of those being treated. The rate of HTN awareness, treatment and control varied according to age. The rate of hypertension awareness that is less than 10% before the age of 55, but it is rapidly improving to 30% from 55 years. This is illustrated in figure 1.

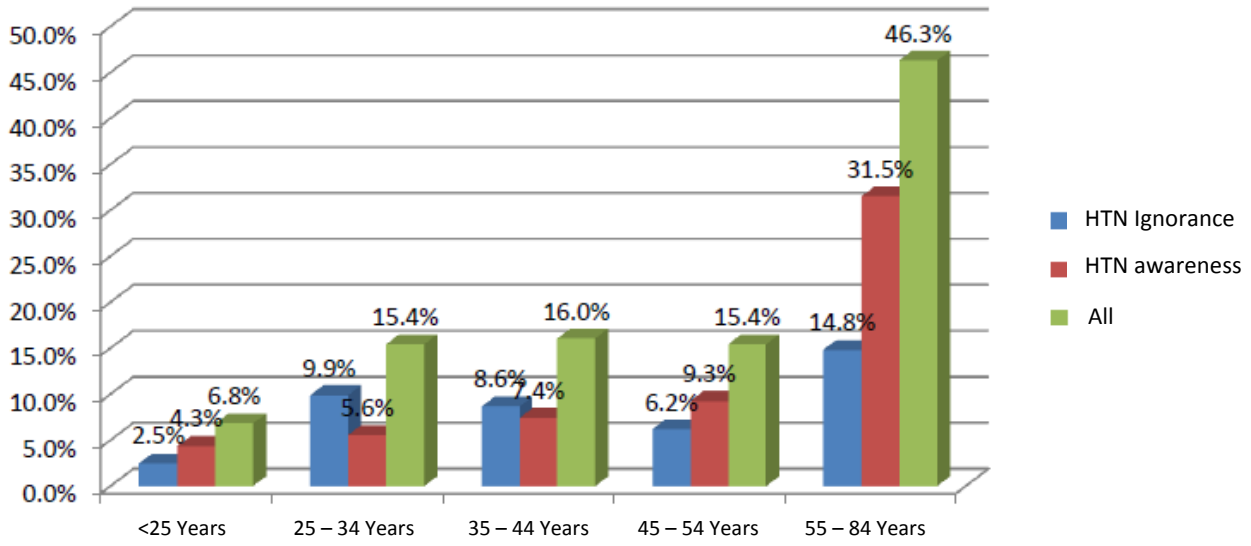

Figure 1 : Awareness of hypertension according to the age

Figure 2 shows that before the age of 55, the rate of awareness is better in women. But after this age the rate becomes better in men, although a significant improvement of this knowledge is also seen in women after 55 years.

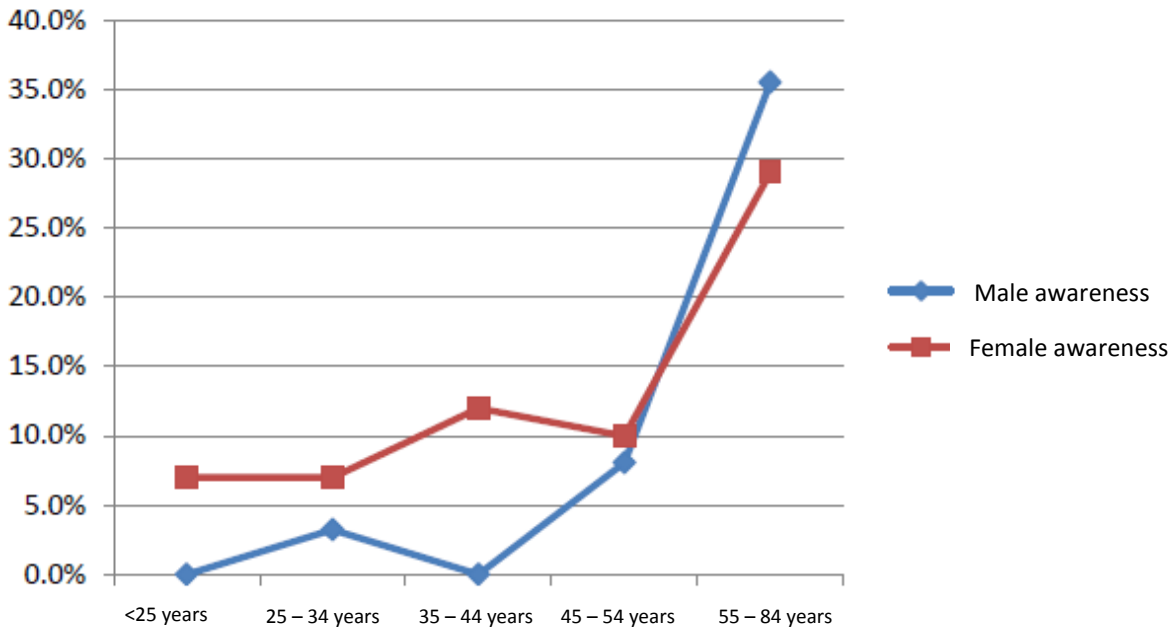

Figure 2 : Trends of the awareness rate according to sex, with aging

The control rate is worse in hypertensive older women than among the younger ones. An opposite situation is observed in men, in whom there is a better control of hypertension in older men compared to the younger ones. This is illustrated in Figure 3.

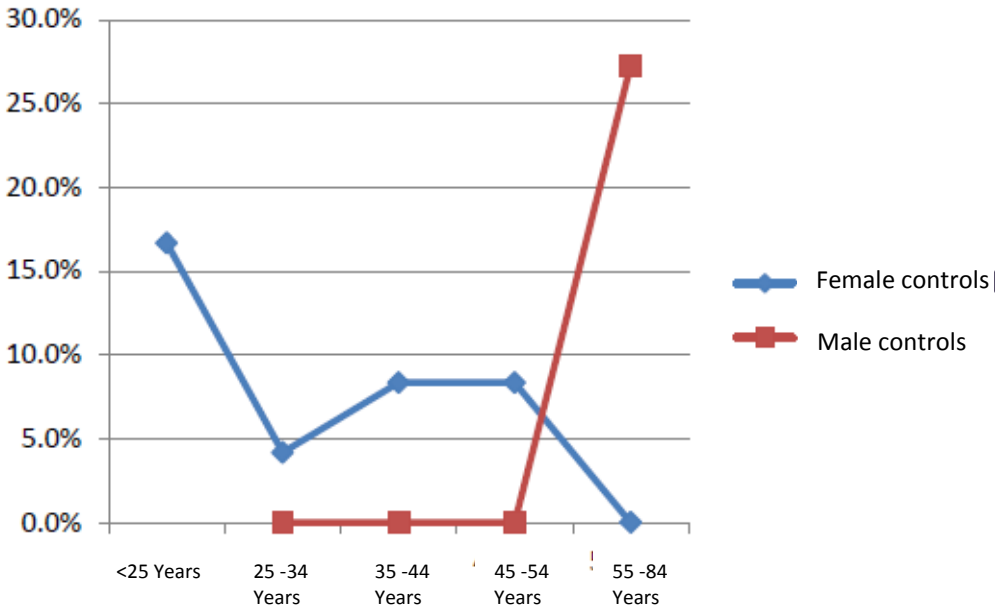

Figure 3 : Trends of the control rate according to sex, with aging

IV. Discussion

The interest of the issue of the prevalence, awareness, treatment and control of hypertension justifies the large number of publications that exist on the subject. All these publications agree that in Sub-Saharan Africa, more than elsewhere, high blood pressure is under-diagnosed, under-treated and poorly controlled. In DRC the available population based, epidemiological studies on hypertension have been held Kinshasa and its environs [14-16], in the west of the RDC, and more recently in South Kivu [17] in the eastern part of the country. These studies showed that the prevalence of hypertension deepened year to year and was higher in urban than in rural areas, contrary to what had been observed several decades ago. These previous studies have also shown, as elsewhere in sub-Saharan Africa, low rate of hypertension awareness, treatment, and an even lower rate of hypertension control. Since the trend of hypertension and other risk factors of cardiovascular disease are changing because of the growing urbanization and related lifestyle changes in sub-Saharan Africa, and since the city of Matadi has never benefit from epidemiological study on hypertension, this study was required and cannot be regarded as excessive.

It is well known that the prevalence of hypertension varies with the considered age range. It is also well known that women are less likely to have high blood pressure than men before the age of 55 and after trends are equalized before reversing. But to the best of our knowledge, this study is the first to show that the gender related differences in the rate of awareness and control also varied with the considered age group.

a) General characteristics

The present study showed that hypertensive patients tend to be older. This is in agreement with virtually all previous studies, they were in-hospital or population-based. It is indeed long been known that advanced age was the main risk factor for high blood pressure. This is attributed to the aging process of the arteries. This study also found that hypertensive patients were more often married. The major responsibilities brought by marriage and psychosocial stress that follows would be the explanation. However a confounding factor such as age could also explain this, since in general the married are older than the unmarried. That members of the Catholic and Protestant religions are often hypertensive than those of other religions including revivalist churches could be explained by the fact that there would be more solidarity, more faith and therefore more inner peace and less psychosocial stress among the followers of these religions. But again, the existence of confounding factors must be postulated, and these findings need to be confirmed in the larger survey.

b) Prevalence and awareness

The prevalence of hypertension found in this study is 40.8%. The same prevalence has been found by Katchunga et al [17] in South Kivu province in eastern DRC. The distribution of the prevalence in urban and rural areas is also consistent with the results of Katchunga et al. [17]. Aside from some studies that have focused on older populations, the prevalence found in this study is the largest ever reported in sub-Saharan Africa. Would the DRC be the epicenter of the epidemic of hypertension in sub-Saharan Africa? Fifty Eight percent of the hypertensive participants were

aware of their hypertensive status before the surveys. This is consistent with the Katchunga et al. findings[17]. Considering a recent meta-analysis which found a rate of awareness of hypertension between 7% and 56% in sub-Saharan Africa [18], this rate of awareness is one of the best ever reported in sub-Saharan Africa. Only Awoke et al. in North-West Ethiopia (63%) [19] and Bovet, from a national wide survey in Seychelles (65%)[20] reported a higher rate of awareness of hypertension. However, considering the fact that 42% of hypertensive patients were unaware of their condition before the study, we consider that there is still much outreach work to be done. The sensitization should not only target individuals but also the health care professional who need to seize the opportunity of each consultation to measure patient's blood pressure. This study also showed that the prevalence of hypertension increases before age 35, is stabilized between 35 and 54 years and then majored considerably after 55 years. The rate of awareness follows the same trend, but with a disparity between the sexes. In fact, women seem more aware of their condition than men before the age of 55 years. This trend was reversed after the age of 55 where men become more aware than women. Somatic and psychological changes inherent in menopause [21] would they be the basis for a relaxation of attention or disinterest which would explain the decline in the awareness of hypertension at this age? It has been demonstrated that over time women's sense of control declines more than men's [22].

c) Treatment and control

This study found a low rate of treated patients (37.2%) and an even lower rate of control in treated hypertensive patients (34.2%). This is a common situation around the world. But all authors agree that the situation in sub-Saharan Africa is more dramatic than in other regions. Rather than the "law of halves" which is generally observed in Western countries, this study showed that here, it is the "law of thirds " that prevails when considering the rate of treated and controlled hypertensive persons. This contrast between Western trends and trends in Africa and especially sub-Saharan Africa will intensify in future years. Indeed, while the 2013 guidelines of the French Society of Arterial Hypertension advocates improving hypertension control from 50% to 70%, an objective expected to be achieved in 2015 [23], (there is a comma, not a full stop) in sub-Saharan Africa, the rate of hypertension treatment and control are consistently below 50%. The high rate of uncontrolled hypertension overshadows either a non-optimal management, or a poor adherence. It is as a result of incompetence of the attending physician or the patient's lack of discipline, or both. While there are certainly rare complex cases where, despite the competence and patient adherence, high blood pressure remains uncontrolled. This is also an intrinsic characteristic of HTN in blacks to be difficult to control. But poverty in this region has some responsibility, since it decreases the patient's accessibility to health care. In sub-Saharan Africa, overall, 18% of individuals with hypertension were receiving treatment across the studies [18]. The treated hypertensive rates found in this study (37.2%) exceeds this rate. As for the 34.2% control rates found in this study, it is one of the best ever reported in sub-Saharan Africa. Only Damasceno et al. (39%) [24] reported a higher control rate than the one we found. These figures on the treatment and control rate are quite flattering when compared to figures found elsewhere in sub-Saharan Africa. But they are meager when compared to those found in North Africa or in the Western, and when considering the consequences it can have on the morbidity and mortality of these patients with uncontrolled hypertension. In DRC, Katchunga [17] reported 13% of controlled hypertension. The post-war situation in the province of South Kivu and the consequences this has had on the organization of health services can explain this difference between two geographical sites of the same country. Further studies are needed to understand the reasons for the better treatment and control rate profiles observed in the city of Matadi on the figures found in other sub-Saharan studies. Improving this grim picture of low rate of awareness, treatment and control of hypertension calls for the involvement of several actors such as attending physicians (patient sensitization and evidence-based optimal treatment) patients themselves (strict compliance with lifestyle changes and good adherence to medical treatment) government (regulatory of cooking salt intake and physical activity) and media (information on risks of too much salty food, too much fat and a sedentary lifestyle).

Our findings should be interpreted in the light of certain limitations including the office blood pressure rather than the ambulatory blood pressure or Self-measurement of blood pressure.

V. Conclusion

This study found a high prevalence of HTN, as well as low percentage of HTN awareness and treatment. As described elsewhere, despite the availability of a wide selection of effective antihypertensive treatments and the existence of clear treatment guidelines, many patients with hypertension do not have controlled blood pressure [18]. As a balance with the center of inertia represented by the age of 55, female hypertensive are more aware than male hypertensive before the age of 55, male are more aware than female after 55 years. Female after 55 are less well controlled than male, male before age 55 are less well controlled than female. It is time to consider and organize a coordinated response where doctors, patients, policymakers, the media, in short everyone, should play an active role.

VI. Acknowledgment

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Astigmatism among other Refractive Errors in Children of Southern Sri Lanka

By Prof. Saman Wimalasundera
University of Ruhuna, Sri Lanka

Abstract- The main goal of this study was to find the problem of astigmatism among children with refractive errors who are were in the age group of 3 – 14 years. A two stage screening process was envisaged and 5649 children were screened to find visual abnormalities and other defects. Of them, 1233 (21. 8%) were selected for second stage screening. The total ophthalmological manifestations found were 7.8% (78/1000). The analysis of different morbidities included refractive errors 6. 2% and other eye diseases 1. 6%. Among refractive errors 2.3% were unilateral and 3.9% were bilateral involvement. The prevalence of simple myopia was 1.65% and of hypermetropia was 0.95%. Yhe astigmatism found was 1.5% unilaterally out of 2.3 of total unilateral refractive errors. Bilateral astigmatism was 2.1% out of 3. 9% of total bilateral refractive errors. Findings indicate the existence of more astigmatic errors among Sri Lankan children either unilaterally or bilaterally.

Keywords: *refractive errors, astigmatism, simple myopia, hypermetropia, screening.*

GJMR-F Classification : *NLMC Code: WW 310*

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I. Introduction

One important major disease condition that leads to visual failure and related symptoms such as headache, and asthenopia include refractive errors of light rays entering the eyes.

The refraction of light means, when the rays of light travels through air, and enter a denser transparent medium the speed of light is reduced and the light rays proceed at a different angle (bending of rays) the light is hence called refracted. The ray of light, if incident perpendicularly to the denser medium, it does not bend but only reduces the speed.The refraction power of the light is derived from the index of refraction of various parts of the eye through which light passes in to the eye.

When the light from an object reaches the eye it has to pass the cornea, aqueous humor, crystalline lens and vitreous humor to get at the retina where the stimulus of light ray is converted to neuro-electrical impulses.(Andcea 1987)

The curvature of the cornea and the lens play an important role in the refraction of the light. The cornea contributes approximately two thirds of the refractive power and the lens contributes about one third of the refractive power of the eye. The cornea has the index of refraction of 1. 376 and lens has the average of 1.41.The total power of the eye does not equal to the sum of the power of the cornea and the lens because they are separated at aqueous and vitreous interfaces and it is around + 58 diopters. The curvature of the human lens could be altered using the circular cilliary muscle and its refractive state could be actively changed according to the need.

When the refraction of the eye does not take place accurately to focus the rays on to the macula area of the retina, the condition is called the refractive error (AMETROPIA). In an eye with a refractive error the parallel light rays that come in to the eye will therefore focus in front or behind the plane of the retina when the eye's optical system is at rest. This process will result in the blurring of the image. In a schematic eye a 0.3mm shift in the focal place needs a correction of one diopter.

The optical system described above assumed to have spherical structures. That means all meridians of curved structures have equal spheroidal surfaces. Many optical systems in the eye are however are not so and resembles a toric surface. In a toric surface the curvature varies in different meridians. In such instances the light rays passing through steep meridians will be more deflected than rays which pass through flatter meridians. This is a complicated process and will result in defocusing the part of the object from which the light rays pass in to the eye through anomalous meridian. This condition is called Astigmatism.

Corneal toricity is the cause of most of the Astigmatism. Astigmatism could be simple myopic or hypermetropic depending on where the ammetropic rays get their focal point. If the part of the rays is focused in front of the retina, it is called myopic astigmatism. When part of the rays is focused behind, it is called hypermetropic stigmatism. When only one meridian is ammetropic (either myopic or hypermetropic) it is called simple myopic or hypermetropic astigmatism.In the mixed type of astigmatism one principal meridian is myopic type and the other one is hypermetropic type. When both meridians are ammetropic, it is called compound astigmatism. If both meridians are hypermetropically deviated differently it is called compound hypermetropic astigmatism and if the same entity happens myopically the condition is called compound myopic astigmatism. In mixed type of astigmatism one meridian becomes hypermetropic whilst the other is myopic.

Astigmatism is again classified as regular or irregular. In the regular type the principal meridian are ninety degrees apart. (Perpendicular to each other). In irregular astigmatism the principal meridians are not

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perpendicular. Most astigmatisms are regular type. (Gary Heitingod) (Jackson ans Finlay 1985)

Refractive errors among children could be easily detected and treated. Delay in seeking treatment lead to significant ocular morbidity including amblyopia, low vision and poor quality of life (Resinikoff 2004) Having recognized the importance of the prevention of low vision, the 66th world health assembly initiated a global action plan for 2014 – 2019 to promote universal eye health. This plan requests member states to take measures to reduce avoidable visual impairement by 25% by the year 2019 (WHO 2013) (Deborah 1985)

Astigmatism can be corrected with special type of lenses called toric lenses. In a toric lens one meridian is more curved than all other meridians. The meridian of least curvature and greatest curvature are always at right angles in a toric lens. Toric lenses can be plus lenses (to correct hypermetropic astigmatism)or minus lenses (to correct myopic astigmatism) Toric lenses are called sphero-cylinders, in which the power of the lens act only perpendicular to its axis.

Clinically people with astigmatism experience headache, fatigue of eyes after work, eye strain and blurred vision at distances. These symptoms may not necessarily due to astigmatism only but exclusion of astigmatism is important in people with such symptoms.

II. Objective of the Study

1. To find the prevalence of astigmatism among school children and its different types.

a) Study setting

One of the health unit areas of Galle(Bop-Poddala) district was selected for this study. All children of 3 – 14 years were taken as study subjects.

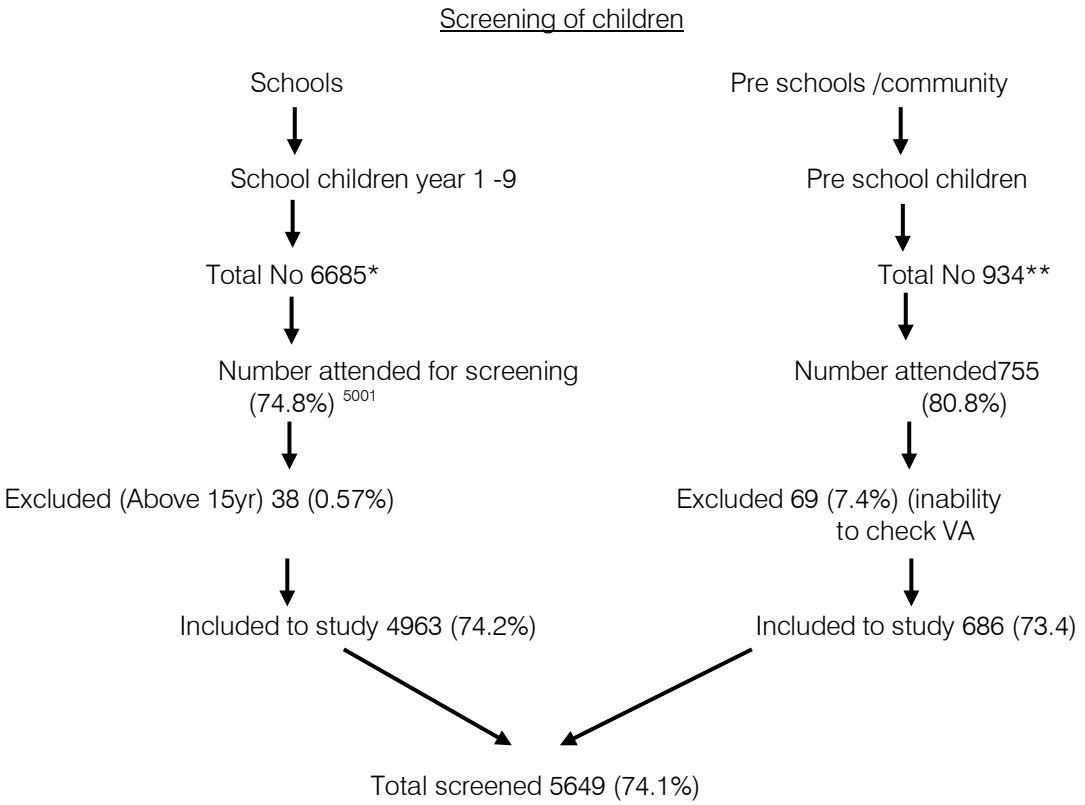
b) The study design

The study design included three stages. In stage one the primary visual screening at schools, pre schools and in the community was done. The positive cases difficult cases, refusals and absentees were re screened at stage two screening in the field. The selected cases from second screening were referred to a third stage complete ophthalmological examination for diagnostic and treatment purposes at a well equipped eye clinic.

Primary and secondary screening of children was done by trained, medically qualified doctors with the help of the chief investigator in the field. The third stage examination was done by the ophthalmic qualified principal investigator. The health department field staff helped in other activities like finding subjects from the community, schools and pre schools.

III. Results

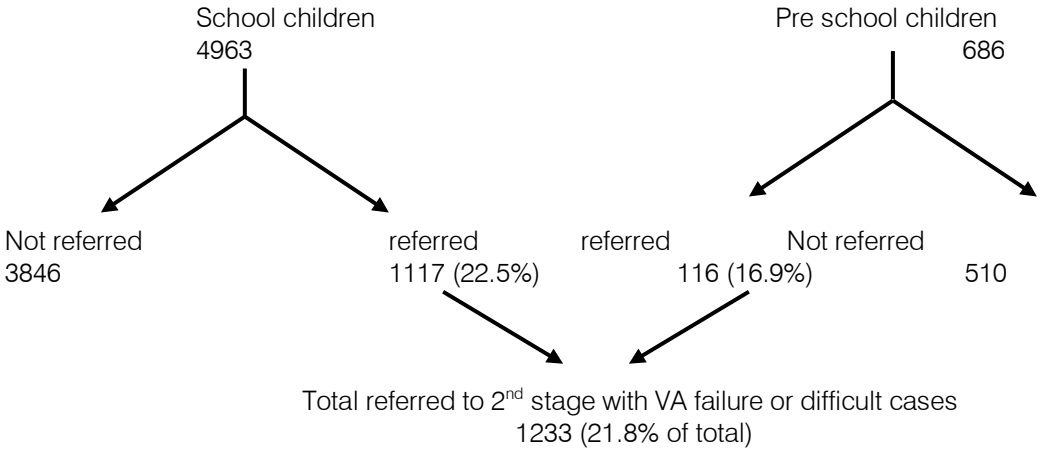
a) Coverage of subjects



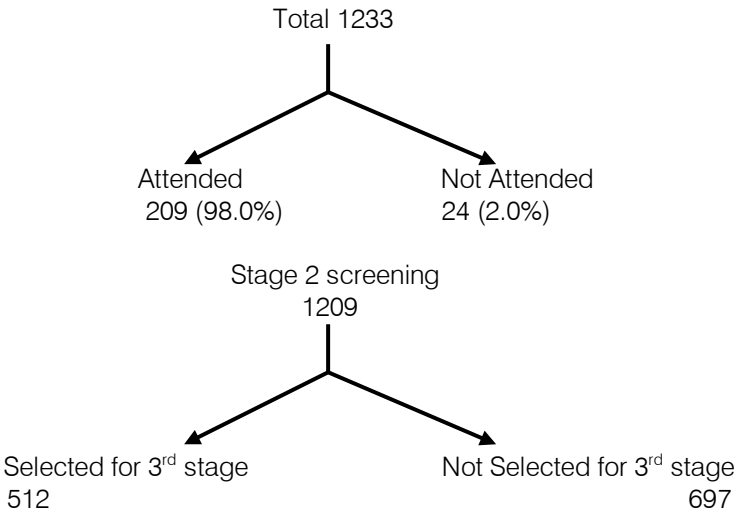
*- School records
** - PHM records

b) Stages of screening and referrals

Stage 1



Stage 2 screening



3rd stage examination

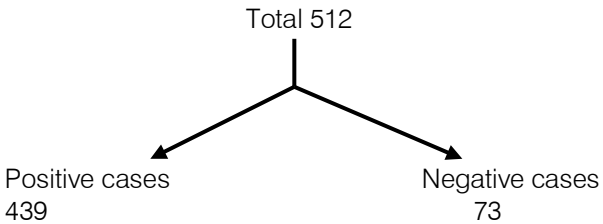


Table 1 : Break down of confirmed eye diseases after examination

Disease category	Visual defect		Total	Prevalence N=5649
	+	-		
Refractive errors	351	-	351	**6.2%**
Other eye diseases	39	49	88	**1.6%**
Total eye diseases	390	49	439	**7.8%**

Table 2 : Distribution of refractive errors – The involvement of the eye

Distribution	Eye		Prevalence
Unilateral	Right Left	40 88	0.7% 1.6%
Bilateral		223	3.9%
Total		351 eyes	6.2%

Table 3 : Distribution of refractive errors
Different types – unilateral involvements

Types of refractive errors	involvements				Total		Prevalence N=5649
	Right		Left				
	No	%	No	%	No	%	
Simple myopia	8	20.5	23	25.8	31	24.2	0.5
Simple Hypermetropia	9	23.5	7	7.9	16	12.5	0.3
Myopic Astigmatism	16	41.0	51	57.3	67	52.3	1.2
Hypermetropic Astigmatism	2	5.1	1	1.1	3	2.3	0.05
Compound Myopic Astigmatism	-		2	2.2	2	1.6	0.04
Compound Hypermetropic Astigmatism	2	5.1	1	1.1	3	2.3	0.05
Mixed Astigmatism	2	5.1	4	4.5	6	4.7	0.11
Total	39	100	89		128	100	
Prevalence (N=5649)	0.7%		1.6%				2.3%

Prevalence of unilateral refractive errors = 23/1000

Prevalence of total unilateral Astigmatism = 15/1000

Table 4 : Distribution of refractive errors – different types
Bilateral involvements

Type	Right		Left		Total		Prevalence
	N0	%	N0	%	N0	%	%
Simple myopia	64	28.7	66	29.6	130	29.1	1.15
Simple Hypermetropia	41	18.4	34	15.2	75	16.8	0.65
Myopic Astigmatism	83	37.2	91	40.8	174	39.0	1.55
Hypermetropic Astigmatism	9	4.0	10	4.5	19	4.3	0.15
Compound Myopic Astigmatism	17	7.6	14	6.3	31	7.0	0.25
Compound Hypermetropic Astigmatism	-	-	1	0.4	1	0.2	0.01
Mixed Astigmatism	9	4.0	7	3.1	16	3.6	0.15
Total	223	100	223	100	446 eyes		
Prevalence (N=5649)	3.9%						

Prevalence of bilateral refractive errors = 39/1000

Prevalence of bilateral Astigmatism = 21/1000

Table 5 : Average Astigmatism

	Unilateral	Bilateral			Average of Astigmatism unilateral and bilateral
		Right	Left	Average	
Myopic astigmatism	52.3%	37.2%	40.8%	39.0%	**45.7%**
Hypermetropic astigmatism	2.3%	4.0%	4.5%	4.25%	**3.3%**
Compound myopic astigmatism	1.6%	7.6%	6.3%	6.95%	**4.3%**
Compound Hypermetropic astigmatism	2.3%	-	0.4%	0.20%	**1.3%**
Mixed astigmatism	4.6%	4%	3.1%	3.55%	**4.1%**
Total astigmatism out of all refractive errors.	**63.1%**			**54.0%**	**59.0%**

IV. Discussion

The main aim of this study was to highlight the astigmatism in Sri Lankan children including other types of refractive errors. Uncorrected refractive errors can hamper the performance at schools and lead to various symptoms such as headache, pain in the eyes and aesthenopic symptoms.

A study among children aged 5 – 17 years from Asia, Afro America, Hispanics and Whiles revealed that Asians had the highest age and sex adjusted prevalence of myopia (18.5%) and astigmatism (33.6%) (Kleinstein, Lee, and Zadnik 2003)

A study conducted among 7 – 15 years old children (N = 44.4) in a rural population of India showed that the couse of visual impairement is mainly refractive errors and it was 61%. (Dandona et al 2002)

Another study done in Hydrabad India in children aged 3 – 18 years revealed astigmatism of 10.3% (Kalikirani, Naduvilath, Bantal and Dandora 1997).

Seimon (2005) analysed the prescriptions issued by over 150 optometrists that includes children <15 years over a period of one year and found that 5612 children had sought correction for all kinds of refractive errors.

In this study the total sample of children between 3-14 years was 5649, representing the children of same age group living in southern Sri Lanka. Of them1233 (21.8%) were selected for further second stage screening using the Snellen's chart and direct examination of the anterior segment. Those selected cases included the first stage screen failures and the difficult to screen cases. For the second stage 98% of referred cases attended and of them 512 children were qualified for the third stage examination. After the examination, 439 cases were confirmed having an ophthalmological diagnosis, giving a prevalence of 7.8% (78/1000).

The analysis of different disease conditions gave the prevalence of Refractive errors of 6,2%(62/1000) and other eye conditions of 1.6% (16/1000).Table 1.

The analysis of the distribution of Refractive errors showed 2.3% (23/1000)of unilateral involvement and 3.9%(39/1000) of bilateral refractive errors in children.-Tables2, 3, & 4.

The prevalence of total simple myopia (bilateral and unilateral) was 1.65% (16.5 / 1000). Simple hypermetropia 0.95 (….1.0% or 10 / 1000)

The astigmatism in children is the main concern of this paper and the the analysis showed a prevalence of unilateral Astigmatism of 1.5% or 15/1000 compared to total unilateral refractive errors of 23/ 1000 in children. The prevalence of bilateral astigmatism was 21/1000 compared to total unilateral refractive errors of 39/1000.In the calculation In the calculation of total Astigmatism, the average of bilateral similar types were considered–Table 5.

The average Astigmatism calculated was 59.0%of all Refractive errors and the most prevalent form of Astigmatism in school children was found to be Myopic Astigmatism, which amounts to 45.7% of all refractive errors. As a prevalence the Myopic Astigmatism alone was 2.8% (28/ 1000)either unilaterally or bilaterally in school children in southern Sri Lanka making it the most common form of refractive error.

This study highlights that the refractive errors constitute a considerable amount of visual problems among children. Among all refractive errors in Sri Lankan children Astigmatism constitute a bulk. Although Sri Lanka has a well established primary health care system, the burden of refractive errors implies that further consideration in to the issue of screening is needed.

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Diabetes and Organ Dysfunction in the Developing and Developed World

By Ian James Martins
Edith Cowan University, Australia

Abstract- Induction of global organ disease has become important with the events related to diabetes in both the developed and developing world. Type 2 diabetes and peripheral organ disease are connected to Type 3 diabetes that involves the brain early in life associated with brain diseases (stroke, dementia, Alzheimer's disease).The incidence of diabetes has been predicted to increase to 21% by 2050. In various continents the rise in the global diabetes epidemic has been associated with diseases of various organ diseases related to obesity, diabetes and neurodegenerative diseases (Parkinson's disease and Alzheimer's disease). Nutritional therapy has become of central importance as early nutritional therapy may delay organ disease and aging.

Keywords: global, diabetes, appetite, nafld, neurodege -neration, nutrition, obesity, metabolic syndrome, pancreatic disease.

GJMR-F Classification : NLMC Code: WD 200

Strictly as per the compliance and regulations of:

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Keywords: global, diabetes, appetite, nafld, neurodege - neration, nutrition, obesity, metabolic syndrome, pancreatic disease.

I. Introduction

The projected health care costs by the year 2018 in the United States has been reported to be 344 billion dollars and account for 21% of total health care costs. Age stands as the major risk factor for organ disease and with the global aging population the increase in individuals with brain senescence may be associated with various organ diseases. Interests in the induction of organ disease has become important to disease manifestation and medical research has invested billions of dollars in the diagnosis of various diseases with novel tests that are able to identify the importance of an organ that has malfunctioned early (brain, liver or pancreas) that leads to chronic disease progression with metabolic abnormalities.

The global diabetes epidemic in the developing and developed world has attracted considerable interest with the increased incidence in the global stroke epidemic [1-5]. Interests in early brain senescence has increased and possibly connected to obesity, Type 2 diabetes and Type 3 diabetes [6,7]. Individuals with Type 2 and Type 3 diabetes are induced early in life with nuclear and subcellular changes involved with cell membrane alterations linked to disorders of lipid metabolism with changes in several plasma analytes such as glucose, cholesterol, calcium (cell levels) with lowzinc levels that lead to diseases of the liver, kidney, heart, thyroid, brain and pancreas (Figure 1).

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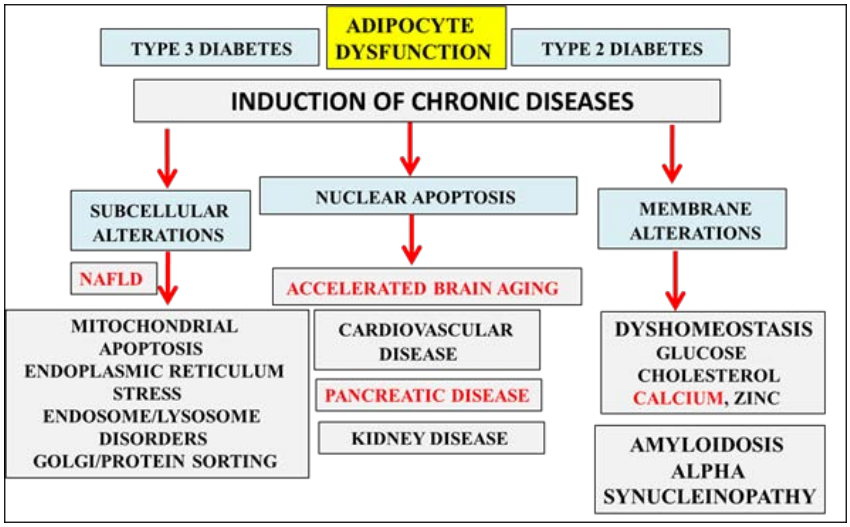

Figure 1 : The role of adipocyte dysfunction in the induction of chronic disease has been associated with subcellular and membrane alterations that involve nuclear apoptosis. Accelerated aging involves the diseases of the heart, brain, liver, kidney and thyroid and involve the dyshomeostasis of plasma glucose, cholesterol, calicium and zinc. Subcellular alterations in cells include mitophagy, endoplasmic reticulum stress, endosome/lysosome protein and lipid disorders and golgi associated protein disorders that may be associated with diabetes and Alzheimer'disease.

Induction of chronic diseases may be linked to adipocyte dysfunction [8,9] associated with the current global stroke epidemic [1,10] with multiple changes in brain function that effect an individuals cognition and behavior.Chronic diseases are associated with changes in the mitochondria (mitophagy), endoplasmic reticulum (ER)/golgi apparatus (ER stress/protein synthesis) and lysosomal disorders (lipid/protein metabolism). Unhealthy diets, environmental influences and lifestyle changes that lead to overnutrition with an excess of glucose, fats and proteins that enter the blood plasma from the gastrointestinal tract induce cell and nuclear alterations that lead to various subcellular abnormalities. Diseases such as gastroinstestinal disorders, cardiovascular disease, non alcoholic liver disease (NAFLD), thyroid, lung and diseases of the reproductive organs have increased in both the developing and developed world. Insulin resistance is possibly involved early in chronic disease progression and associated with inflammatory processes that alter nuclear, subcellular and cell membrane function (Figure 1) that leads to cell transformation without reversible changes with accelerated cell apoptosis.

a) Accelerated aging is associated with pancreatic dysfunction and chronic disease progression

The pancreas has been implicated in chronic disease progression and the pathogenesis of major organ diseases withincreased death rates in both the developing and developed world. Pancreatic disease is associated with the release of low levels of insulin as a result of pancreatic disturbances [7] or the release of insulin to peripheral and brain cells that do not respond to allow glucose to move into cells with overt hyperglycemia. The intimate association of the pancreas with various chronic diseases indicates a role for association with the brain and liver (Figure 2) to play an important part in the complications of the variousperipheral chronic diseases associated with dyslipidemia, neuroendocrine disease (stroke) and the metabolic syndrome.

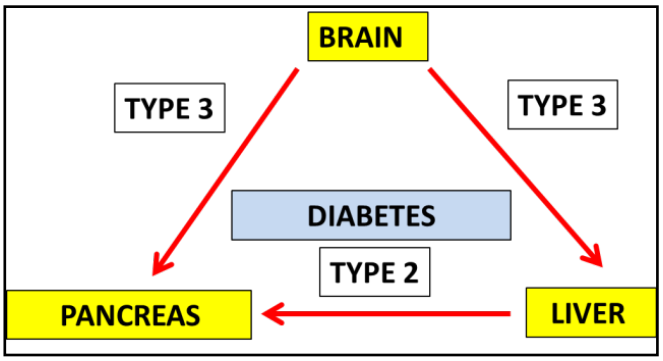

Figure 2 : In the current global epidemic individuals with insulin resistance involve early brain senescence (Type 3 diabetes) with NAFLD (Type 2 diabetes) and pancreatic dysfunction. Accelerated aging with pancreatic disease are linked to high fat diet with elevated palmitic acid levels that induce NAFLD, pancreatic disease and Alzheimer's disease.

In the global diabetic epidemic hyperglycemia and hyperlipidemia with pancreatic dysfunction may involve NAFLD linked to Type 2 diabetes [11-12] and Type 3 diabetes (Figure 2). Alzheimer disease (AD) is now referred to as Type 3 diabetes [6,7]with early brain senescence and insulin resistancethat involves other neurodegenerative diseases such as Parkinson's disease, Huntington's disease and Multiple Sclerosis [7]. Furthermorethe prevalence of Type 2 diabetes and AD increase with age and in the pancreas the islet of Langerhans in type 2 diabetes is characterized by β-cell

loss and islet amyloid deposition that are associated with brain dysfunction in Alzheimer disease characterized by loss of neurons with brain amyloid deposits [13].

In Western countries the increased intake of fats, sugars and proteins may induce early liver disease with NAFLD with hyperglycemic/hyperlipidemia closely involved in pancreatic dysfunction in these individuals. Diets that are rich in fat (palmitic acid) induce NAFLD that release cytokines that are involved with pancreatic disease with increased palmitic acid in cells that may induce beta cell apoptosis in the pancreas [14-17].Calorie sensitive genes in the liver are sensitive to nutritional regulation [4,5] with downregulation of these nuclear receptor genes and proteins involved in early hepatocyte senescence [4,11]. NAFLD has increased in both the developed and developing world and induction of NAFLD may involve endrocine disruptors (environmental exposure) and xenobiotics that promote insulin resistance and pancreatic disturbances in these communities [4,18]. The complex interactions of Western diets, environmental and genetic factors may induce early liver and brain senescence that are linked to neuroendocrine disease that promote insulin resistance and pancreatic disease (Figure 2) with the development of various organ disease in global communities. Specific nutrients such as leucine and pyruvic acid are essential for insulin secretions [19-22] with phosphatidylinositol ingestion important to pancreatic function and survival.Cellular calcium channel dyshomeostasis in diabetes may be relevant to pyruvic acid levels with leucine and calcium important to energy metabolism in muscle and adipocytes [23-26].

b) Overnutrition leads to accelerated adipocyte senescence with diabetes and organ disease

Individuals with obesitydevelop circadian disorders linked to intracellular calcium suprachiasmatic nucleus fluctuations [27] and appetite dysregulation that are connected to diabetesand various organ diseases [10, 28].Adipocyte dysfunction has become of central importance to the development and treatment of diabetes (Figure 1) withabnormal transcriptional regulation of adipogenesis linked to several organ diseases in the Western world [28].Overnutrition and appetite dysregulation are closely linked to loss of adipocyte function with early adipocyte senescence linked to the severity of various metabolic events in diabetes associated with the cellular apoptosis in these organs.

Adiposity is the body fat tissue content and increases in adiposity is measured by body mass index (BMI). Obese individuals are defined as having a BMI of >30 (BMI=weight in kg/[height in m]2 whereas overweight is defined as having a BMI from 25-30 and ideal lean individuals to have a BM of 25 kg/m2. Visceral fat is more metabolically active than peripheral fat and is associated with type 2 diabetes, dyslipidemia, high blood pressure, and increased risk for atherosclerotic disease [29,30]. The waist-to-hip ratio helps to identify patients with excess visceral adiposity. Women with a waist-to-hip ratio > 0.8 and men with a ratio > 1.0 are considered to have excess central adiposity that confers risk for developing the metabolic syndrome. Morbid obesity classification is BMI of > 35 kg/m2 and severe obesity >40 kg/m2. In the United States children and young adults affected by type 2 diabetes has risen and childhood obesity [28] is now considered a major predictor of adult obesity and Type 2 diabetes.

In the current obesity and diabetes epidemic the anti-aging gene sirtuin 1 (Sirt1) is implicated as a NAD(+)dependent class III histone deacetylase (HDAC) protein that targets transcription factors to adapt gene expression to metabolic activity, insulin resistance and inflammation in various diseases [31-33]. Interests in Sirt 1 have increased since it may override the effects of genes and their cellular expression with importance to obesity, diabetes and accelerated neurodegenerative disease [31-33]. Sirt 1 is involved in gluconeogenesis in the liver, fat mobilization from white adipose tissue, cholesterol metabolism, mitochondrial biogenesis, adipocyte senescence and energy metabolism [1].

Adiposity is involved with Sirt1 dysregulation with adipocyte size negatively correlated with adiponectin levels and high density lipoprotein levels (HDL) levels. Adiponectin is mainly secreted from the adipose tissue into the bloodstream and inversely correlated with body fat in adults. Adiponectin like leptin is involved in appetite regulation with effects in the brain regulated by dietary fat intake [34]. Adiponectin is involved in the metabolic syndrome, NAFLD with excess calorie consumption involved with adipose tissue Sirt 1 downregulation. Adipose tissueSirt 1 effects on the release of adipokines (adiponectin, leptin) and cytokines (tumor necrosis factor alpha, interleukin-6 and C-reactive protein levels, Ang II) [1](Figure 1) are implicated in abnormal cellular processes involved in the development of early brain senescence (Type 3 diabetes) associated with cardiovascular diseaseand pancreatic disease.

c) LPS and Obesity linked Type 2 Diabetes are associated with pancreatic disease and neurodegeneration

Atherogenic diets that contain high fat contents have been discouraged in various communities to prevent obesity linked diabetes with the role of these fat diets relevant to the transport of gut microbiotica that increase plasma endotoxins such as lipopolysaccarides (LPS) in the blood plasma. LPS has been associated with metabolic diseases and diabetes [35]and have been shown to induce acute pancreatitis [36]. LPS are endotoxins and essential components of the outer membrane of all Gram-negative bacteria and consist of

covalently linked segments, surface carbohydrate polymer, core oligosaccharide and acylated glycolipid (LIPID A) and can bind to cell membranes to alter membrane interactions [37,38].After absorption of fat chylomicrons that are produced contain the LPS binding protein (LBP) that bind LPS and interactions of LPS to apo B containing cholesterol-rich lipoproteins (chylomicrons/very low density lipoproteins) clearly implicate the role of dietary fat and LPS in the induction of pancreatic disease (Figure 3) and LPS-inflammatory processes associated with neurodegenerative diseases [39].

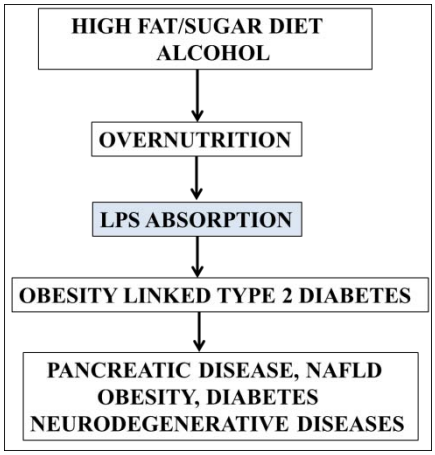

Figure 3 : Induction of pancreatic disease, NAFLD and neurodegenerative implicate LPS, dietary fat and alcohol consumption as factors involved in systemic inflammation. LPS alter hepatic lipid metabolism and adipocyte function with an increase hepatic cytokines and acute phase reactants (APP) that lead to pancreatic disease and neurodegeneration.

The role in LPS in lipoprotein interactions involve apolipoprotein E [37] and binding to lipoproteins prevent inflammatory processes associated with LPS.LPS has been shown to effect cholesterol metabolism by the modulation of the Sirt 1 regulationonliver X Receptors (LXR)and ATP-binding cassette transporter 1 (ABCA1) interactions [33]. In rodents LPS transport across the intestine has been shown to be increased by dietary fat and monitoring of dietary fat intake to reduce LPS induction of metabolic diseases and neurodegenerative diseases (Figure 3) has been indicated. In obese mice altered inflammatory responses were found with LPS administration when compared with control mice with intestinal microbiota linked to pancreatic disease, NAFLD (Figure 3) linked with connections to the systemic inflammation and abnormal lipoprotein production [37]. Furthermore, LPS alter hepatic lipid metabolism with anincrease in hepatic cytokines and APPs in plasma that are involved in pancreatic disease [35-38]. In adipose tissue LPS has been shown to effect adipocyte function with effects on systemic inflammation[39] and administration of adiponectin has been shown to reverse LPS induced inflammatory processes [40-42].

d) Diagnosis tests and relevance to diabetes and global organ diseases

In the obesity linked to diabetes epidemic various plasma tests have been conducted to diagnose various organ diseases induced by obesity. Measurements of glucose, insulin, cholesterol and triglyceride levels allow rapid diagnosis for insulin resistance associated with diseases of the liver, pancreas, heart and liver. Diagnosis of organ diseases by other plasma analysis (Figure 4) involve measurements of electrolytes (sodium, potassium, calcium) for kidney function tests, liver enzymes for liver function, hormones (neuroendocrine disease) and immunoglobulins (immune dysfunction).

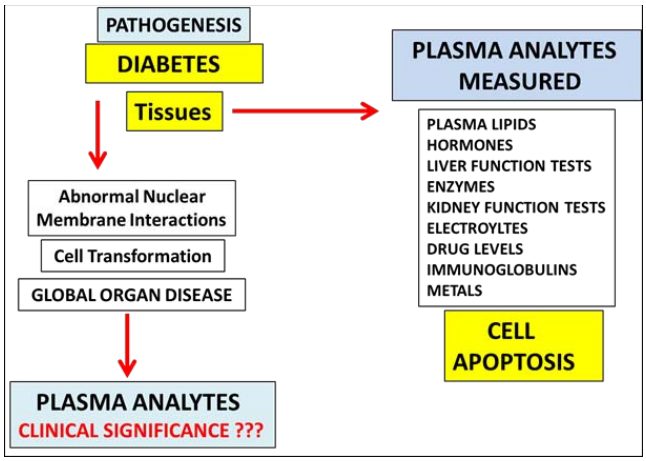

Figure 4 : Diagnostic tests that involve the assessment of early organ disease has become of major importance in global communities. Dyslipidemia, hyperglycemic and calcium and zinc dyshomeostasis indicate cell dysfunction but early events in cell transformation with the loss of rapid amyloid beta clearance with subcellular alterations may have been induced. Genomic tests for nuclear receptors such as Sirt 1 and transcription factors such as p53/microRNA may be important. Diagnositic tests that involve plasma analysis of APP, cytokines, adiponectin, apelin and LPS may be of significance to the detection of early cellular disease.

In the past 10 years links between obesity and Alzheimer's disease have indicated accelerated brain aging is associated with NAFLD and the global stroke epidemic [1]. Adipocyte dysfunction and its association with pancreatic disease has become of major concern with links between pancreatic cancer and diabetes [43,44]. Fat intake should be reduced in global communities with active lifestyles to reduce pancreatic fat to stabilize pancreatic beta-cell function [45,46]. LPS associated with adipocyte dysfunction also affect acinar pancreatic cells with the induction of acute pancreatitis and diabetes [36,47]. LPS in adipocyteshave shown to

reduce adiponectin and apelin levelswith relevance to pancreatic function [48,49]. Tests for plasma adiponectin (adipose tissue) should be routinely performed to determine the relevance of low adiponectin levels [50] and abnormal apelin levels [51] on plasma insulin levels with relevance to pancreatic dysfunction.

In the current obesity epidemic induction of global diabetes involve abnormal nuclear and mitochondria interactions in various cells that may lead to early cell transformation with abnormal adipogenesis connected to NAFLD [11].Early cell transformation may involve incorrect interpretation of the significance of normal plasma analyte levels (cholesterol, glucose, calcium) in the presence of nuclear changes (Sirt 1 downregulation) that involve abnormalities in various cells such as the brain, liver and pancreas. Tests that involve the assessment of APP and cytokines [38] have become important as early events in cell transformation and apoptosis. The significance of the early interventions allow the maintenance of the peripheral sink amyloid beta hypothesis [7,10] that is now closely associated with adipose tissue transformation and liver disease [1,33]. Genetic cell tests that involve genomic markers [33] are required such as gene expression tests for Sirt 1, peroxisome proliferator-activated receptors, microRNA and transcription factors (p53, 5′-monophosphate-activated protein kinase,pregnane X receptor)may be important to determine the early reversal of the obese condition linked to the induction of diabetes.

Monitoring of dietary fat and alcohol intake to reduce LPS absorption with relevance to metabolic diseases and neurodegenerative diseases has become important with LPS linked to Sirt 1 dysregulation and mitochondrial apoptosis. LPS and its effects on mammalian cell transformation (nuclear, mitochondria, membrane) do not allow rapid reversal of chronic disease progression with internal cell dysregulation. Tests for plasma LPS determination may be important with early diagnosis linked to metabolic disease and neurodegeneration without misinterpretation for clinical diagnosis. Apoptotic cells may release cell analytes for clinical diagnosis and reversal of degenerative disease may not be prevented without accurate plasma LPS level determination. Early routine testing for xenobiotics such as bisphenol A and phthalates [18] may allow rapid reversal of pancreatic disease relevant to obesity and induction of diabetes. The synergistic effects of LPS and xenobiotics within cells may transform the cell (lack of peripheral amyloid beta clearance) and the routine plasma measurements may not allow early assessment of functional status with poor interpretations in relation to multiple organ disease associated with diabetes.

II. Conclusion

In the current global diabetes epidemic early cell transformation is possibly associated with accelerated aging and pancreatic disease induced by a high fat diet/alcohol diet that increases plasma LPS levels with reduced xenobiotic clearance. Accelerated aging with downregulation of the nuclear cell receptors such as anti-aging Sirt 1 is linked to insulin resistance (pancreatic disease)with the development of various organ diseases such as NAFLD, brain diseases (Type 3 diabetes), cardiovascular disease and kidney disease. Measurements from routine plasma tests (glucose/cholesterol/calcium) for clinical diagnosis of diseases do not test for functional peripheral sink amyloid beta clearance that is linked to maintenance of the cellular anti-aging processes. Genomic tests such as Sirt 1 expression and p53 analysis early in life may allow maintenance of adipocyte/liver function without irreversible adipocyte transformation that lead to elevated inflammation markers (APP, cytokines) with pancreatic disease and NAFLD. The recent failure of the anti-obese drugs to prevent adipocyte dysfunction now require urgent nutritional interventions with consumption of essential nutrients such as leucine, pyruvic acid and phosphatidylinositol that maintain organ function. Excessive metabolism of these nutrients in global populations inactivate Sirt 1to delay the clearance of LPS/xenobiotics that are connected to pancreatic disease, NAFLD and Alzheimer's disease.

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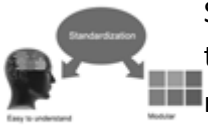

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Institutional Fellow of Open Association of Research Society (USA) - OARS (USA)

Global Journals Incorporation (USA) is accredited by Open Association of Research Society, U.S.A (OARS) and in turn, affiliates research institutions as "Institutional Fellow of Open Association of Research Society" (IFOARS).

The "FARSC" is a dignified title which is accorded to a person's name viz. Dr. John E. Hall, Ph.D., FARSC or William Walldroff, M.S., FARSC.

The IFOARS institution is entitled to form a Board comprised of one Chairperson and three to five board members preferably from different streams. The Board will be recognized as "Institutional Board of Open Association of Research Society"-(IBOARS).

The Institute will be entitled to following benefits:

The IBOARS can initially review research papers of their institute and recommend them to publish with respective journal of Global Journals. It can also review the papers of other institutions after obtaining our consent. The second review will be done by peer reviewer of Global Journals Incorporation (USA) The Board is at liberty to appoint a peer reviewer with the approval of chairperson after consulting us.

The author fees of such paper may be waived off up to 40%.

The Global Journals Incorporation (USA) at its discretion can also refer double blind peer reviewed paper at their end to the board for the verification and to get recommendation for final stage of acceptance of publication.

The IBOARS can organize symposium/seminar/conference in their country on behalf of Global Journals Incorporation (USA)-OARS (USA). The terms and conditions can be discussed separately.

The Board can also play vital role by exploring and giving valuable suggestions regarding the Standards of "Open Association of Research Society, U.S.A (OARS)" so that proper amendment can take place for the benefit of entire research community. We shall provide details of particular standard only on receipt of request from the Board.

The board members can also join us as Individual Fellow with 40% discount on total fees applicable to Individual Fellow. They will be entitled to avail all the benefits as declared. Please visit Individual Fellow-sub menu of GlobalJournals.org to have more relevant details.

We shall provide you intimation regarding launching of e-version of journal of your stream time to time. This may be utilized in your library for the enrichment of knowledge of your students as well as it can also be helpful for the concerned faculty members.

After nomination of your institution as "Institutional Fellow" and constantly functioning successfully for one year, we can consider giving recognition to your institute to function as Regional/Zonal office on our behalf.
The board can also take up the additional allied activities for betterment after our consultation.

The following entitlements are applicable to individual Fellows:

Open Association of Research Society, U.S.A (OARS) By-laws states that an individual Fellow may use the designations as applicable, or the corresponding initials. The Credentials of individual Fellow and Associate designations signify that the individual has gained knowledge of the fundamental concepts. One is magnanimous and proficient in an expertise course covering the professional code of conduct, and follows recognized standards of practice.

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We shall provide print version of 12 issues of any three journals [as per your requirement] out of our 38 journals worth $ 2376 USD.

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- The professional accredited with Fellow honor, is entitled to various benefits viz. name, fame, honor, regular flow of income, secured bright future, social status etc.

- In addition to above, if one is single author, then entitled to 40% discount on publishing research paper and can get 10%discount if one is co-author or main author among group of authors.
- The Fellow can organize symposium/seminar/conference on behalf of Global Journals Incorporation (USA) and he/she can also attend the same organized by other institutes on behalf of Global Journals.
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- Fellow can also join as paid peer reviewer and earn 15% remuneration of author charges and can also get an opportunity to join as member of the Editorial Board of Global Journals Incorporation (USA)
- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in–depth understanding of the application of suitable techniques to a particular area of research practice.

Note :

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- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of "Difference of Opinion [if any]" among the Board members, our decision will be final and binding to everyone.

"

Process of submission of Research Paper

The Area or field of specialization may or may not be of any category as mentioned in 'Scope of Journal' menu of the GlobalJournals.org website. There are 37 Research Journal categorized with Six parental Journals GJCST, GJMR, GJRE, GJMBR, GJSFR, GJHSS. For Authors should prefer the mentioned categories. There are three widely used systems UDC, DDC and LCC. The details are available as 'Knowledge Abstract' at Home page. The major advantage of this coding is that, the research work will be exposed to and shared with all over the world as we are being abstracted and indexed worldwide.

The paper should be in proper format. The format can be downloaded from first page of 'Author Guideline' Menu. The Author is expected to follow the general rules as mentioned in this menu. The paper should be written in MS-Word Format (*.DOC,*.DOCX).

The Author can submit the paper either online or offline. The authors should prefer online submission.Online Submission: There are three ways to submit your paper:

(A) (I) First, register yourself using top right corner of Home page then Login. If you are already registered, then login using your username and password.

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- Font type of all text should be Swis 721 Lt BT.
- Paper Title should be of Font Size 24 with one Column section.
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- Two Column with Equal Column with of 3.38 and Gaping of .2
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- Paragraph before Spacing of 1 pt and After of 0 pt.
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You can use your own standard format also.
Author Guidelines:

1. General,

2. Ethical Guidelines,

3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

6. After Acceptance.

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All authors should have been credited according to their appropriate contribution in research activity and preparing paper. Contributors who do not match the criteria as authors may be mentioned under Acknowledgement.

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Complete support for both authors and co-author is provided.

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Original research paper: Such papers are reports of high-level significant original research work.

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Research articles: These are handled with small investigation and applications

Research letters: The letters are small and concise comments on previously published matters.

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The recommended size of original research paper is less than seven thousand words, review papers fewer than seven thousands words also.Preparation of research paper or how to write research paper, are major hurdle, while writing manuscript. The research articles and research letters should be fewer than three thousand words, the structure original research paper; sometime review paper should be as follows:

Papers: These are reports of significant research (typically less than 7000 words equivalent, including tables, figures, references), and comprise:

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(c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.

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(e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition; sources of information must be given and numerical methods must be specified by reference, unless non-standard.

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(g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.

(h) Brief Acknowledgements.

(i) References in the proper form.

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It is vital, that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

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Language: The language of publication is UK English. Authors, for whom English is a second language, must have their manuscript efficiently edited by an English-speaking person before submission to make sure that, the English is of high excellence. It is preferable, that manuscripts should be professionally edited.

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Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than 1.4 × 10-3 m3, or 4 mm somewhat than 4 × 10-3 m. Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

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A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

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Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

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- One should avoid outdated words.

Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

Numerical Methods: Numerical methods used should be clear and, where appropriate, supported by references.

Acknowledgements: Please make these as concise as possible.

References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

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TECHNIQUES FOR WRITING A GOOD QUALITY RESEARCH PAPER:

1. Choosing the topic: In most cases, the topic is searched by the interest of author but it can be also suggested by the guides. You can have several topics and then you can judge that in which topic or subject you are finding yourself most comfortable. This can be done by asking several questions to yourself, like Will I be able to carry our search in this area? Will I find all necessary recourses to accomplish the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

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7. Use right software: Always use good quality software packages. If you are not capable to judge good software then you can lose quality of your paper unknowingly. There are various software programs available to help you, which you can get through Internet.

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10. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right! It is a good habit, which helps to not to lose your continuity. You should always use bookmarks while searching on Internet also, which will make your search easier.

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20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

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33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

Please carefully note down following rules and regulation before submitting your Research Paper to Global Journals Inc. (US):

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- Do not give permission to anyone else to "PROOFREAD" your manuscript.

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- To guard yourself and others from possible illegal use please do not permit anyone right to use to your paper and files.

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Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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